Date: June 13, 1991
Subject: Comments Re: Risk Assessment for the L.E. Carpenter site
From: Mark Maddaloni Pre-Remedial & Technical Support Section
To: Jon Josephs RPM Northern N.J. Superfund Section II

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General Comments

The risk assessment performed by Weston for the L.E. Carpenter site is comprehensive and well-organized. For the most part, site related risks are detailed in a manner consistent with Risk Assessment Guidance for Superfund (RAGS). Weston might have consulted the Environmental Criteria Assessment Office (ECAO) more aggressively when deriving various toxicity values. Another main concern is the use of background concentrations for screening purposes. These and other concerns are detailed below.

Specific Comments

Page 2-5 Many highly toxic heavy metals were screened out of the risk assessment as a result of comparison with background soil concentrations. Do the determinants of background (i.e. location and number of samples; comparison with regional geologic surveys) measure-up to the task?

Page 3-12 The text employs an Inhalation-Rate-Concentration-Equivalent to estimate exposure dose from the showering scenario. The derivation of this formula should be provided as it differs from the methods outlined in RAGS (P. 6-44) for estimating dose from this pathway.

Page 3-17 The text employs a dermal absorption factor (from soil matrix) of 50% for volatiles and 0% for inorganics. The percutaneous absorption of inorganics is no doubt poor; however, a 1% factor is recommended for the sake of conservatism. Volatiles, on the other hand, have greater dermal absorption, but their subject to significant evaporation. Therefore, an absorption factor of 10 % is recommended.

Page 3-21 The swimming scenario employs an exposure duration of 1 hr/day. RAGS (P. 6-38) recommends 2.6 hrs/day.

Page 3-23 The fish ingestion scenario employs a daily consumption rate of 54 gm/day. RAGS (P. 6-45) recommends 6.5 gm/day for non-subsistence daily consumption.

Page 4-20 The text, in an admittedly ambitious undertaking, derives RfD's by a variety of methods for contaminants lacking toxicity values. The footnotes on P. 4-19 outline the various derivation techniques. Good intentions not withstanding, toxicologic extrapolations should be performed in consultation with ECAO.

Page 5-7 The text states: "surface soils are defined in this risk assessment as being the top eight feet." A depth of two feet is considered a generous definition of "surface" soil.

Page 5-7 It should be noted that when a Hazard Index (HI) exceeds unity RAGS (P. 8-14) suggests segregating the contaminants by mechanism of action and re-computing the HI. A case in point: the Trespasser-Soil-Ingestion-Scenario has an HI of 1.40 E+00. Many chemicals, all with Hazard Quotients (HQ's) less than unity, contribute to this figure. Summing HQ's by mechanism of action would likely result in an HI less than unity.

Page 5-29 The text defines minimum risk levels as: "one excess cancer case per million persons or a hazard index of one." Because minimal cancer risk is usually described in terms of a range (i.e. 1 E-04 - 1 E-06) equating the two risk indicators is better left unsaid.